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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/564,522

Filing Date: June 22, 2006

Appellant(s): PORMA ET AL.

Joe McKinney Muncy
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 17, 2008 appealing from the Office action mailed June 13, 2008.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US Patent No. 5,529,193

Hytönen

6-1996

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claims 1-5 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example;

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- a. In claim 1, line 7, the phrase "the stored acceleration sequences" lacks antecedent basis within the claim as lines 5 and 6 of the claim provide a basis for a single stored acceleration sequence, they do not provide a basis for plural sequences.
- b. In claim 1, line 14, the phrase "the stored sequence parts" lacks antecedent basis within the claim.
- c. In claim 2, the limitation "wherein reading and summing stored sequence parts to be performed as delayed at a time interval which is many times longer than said control step" is not understood. The claim has been amended in appellant's response filed March 10, 2008 by removing the term "the" from in front of summing stored sequence parts as to indicate that these are not the same sequence parts as previously discussed in the penultimate line of claim 1. This is not understood. Also, the overall sentence structure is awkward. It is unclear as to what is being claimed as delayed, the performance of the next velocity change or the reading and/or the summing calculation procedure. What is considered as "said control step" and how does it have a time aspect, as to have the delay much longer than the control step? The only time period discussed in claim 1, is in line 12 which has a definition time of each selected sequence on each control step. This appears to recite different definition times for different control steps.
- d. In claim 3, line 1, it is unclear as to why the term "the" has been deleted from the phrase "the reading and summation interval". The term "the" indicated that this was the same reading step as recited in the penultimate line of claim 1. Although previously the phrase "the reading and summation interval" lacked antecedent basis within the claims, the amendment fails to indicate that the previous reading and summation step is being further limited and the amendment leaves the claim grammatically incorrect. The amendment to overcome the lack of antecedent basis should have changed the language of claim 3 to correspond with the language of claim 1 by adding the interval aspect to the reading step instead of redundantly adding another reading and summing step.
- e. In claim 3, line 2, it is unclear as to why the term "the" has been deleted from the phrase "the stored sequences". The term "the" indicated that these were the same sequences as recited in the penultimate line of claim 1. Antecedent basis for this term could have established by correctly and positively including the term in claim 1, instead of redundantly adding it into claim 3.
- f. In a similar manner in claim 4, removing the term "the" from the phrase "the parts of the sequences" fails to indicate that these were the same sequences parts as recited in the penultimate line of claim 1 and leaves the claim grammatically awkward.
- g. Claim 4 discusses "storing parts of the sequences to be performed as delayed in a two-element table, wherein a velocity change is defined in the first element and time, after

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which the velocity change or changes to be performed as delayed is/are added to the velocity request, is defined in the second element. It is unclear as to what "time" is being claimed as delayed. What time is applicant attempting to claim with the limitation "after which the velocity change or changes to be performed as delayed is/are added to the velocity request"? Is it the time until the next velocity change, or the time for the adding or determining of the amount of the next velocity change (as discussed in claim 2).

- h. In claim 5 the phrase "the change of velocity actual value" lacks antecedent basis in the claims.
- i. Claim 5 discusses "restricting the change of velocity actual value" which is not understood. The claim restricts an actual value which is not understood as it is not fully defined. It restricts it with respect to the previous change. However the term "previous change" lacks antecedent basis within the claim. It sets the change with a "used control step" which is not understood. The step "equals to set maximum acceleration or deceleration at most". Again, removal of the term "the" creates a grammatical error. It is also unclear as to why the term "at most" is included in this phrase.

Claims 1-4, as best understood, stand rejected under 35 U.S.C. § 103 as being unpatentable over Hytönen. Although the claims are not fully understood, they appear to be a variation of the method disclosed in Hytönen. Hytönen includes comparing a new velocity request to a previous velocity request and forming and storing acceleration sequences. Changes in velocity based on the stored accelerations are added for each given time and the sum of the velocity changes is added to the previous velocity request to form a new control command, see the Abstract. Note that drawing figure 3 of Hytönen and the drawing figure 3 of this application are substantially identical. Hytönen varies from the claims by not having a control algorithmic formula that performs delayed portions of the control command at a delayed summing step. However formulas, mathematical expressions of scientific principles, have been held by the courts in themselves to not constitute patentable invention, only the structure resulting from their application. See Mackay Radio and Telegraph Co. v. Radio Corporation of America, 306 U.S. 86, 94; 40 USPQ 199, 202. The novelty of a mathematical formula is not a determining factor at all. Whether the algorithm was in fact known or unknown at the time of the claimed invention; it is one of the "basic tools of the scientific and technological work", and it is treated as though it were a familiar part of the prior art. See Parker v. Flook, 437 U.S. 584, 198 USPQ 193, 198 and Gotschalk v. Benson, 409 U.S. 67, 175 USPQ 674. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to use a "delaying" algorithm which has longer cycle times, i.e., performs fewer of the calculations, or more of the calculations, over a given control period, with the crane control flow chart of drawing figure 3 of Hytönen, as such algorithms are considered as known prior art.

(10) Response to Argument

Appellant argues on page 7 of the brief, that with respect to claim 1, the scope of the claim would be clear to a hypothetical person possessing the ordinary level of skill in the pertinent art. Appellant then recites most of claim 1 and states "that it would be clear to a hypothetical person possessing the ordinary level of skill in the pertinent art that the recitations of claim 1 merely are referring to each of the plurality of claim elements that are previously recited in the claim". However, as listed in paragraph a of the rejection under 35 U.S.C. § 112, second paragraph, line 7 of claim 1 is referring to "the" stored acceleration sequences (plural) and the earlier part of the claim does not set forth plural "stored acceleration sequences". The claim has the method step of "giving velocity requests" as to have two or more of the requests in the method at a given moment, but it does not specify more than 2 of the velocity requests. It states that each velocity request is compared with the previous velocity request, and *if there is a difference*, an acceleration sequence is formed and stored as to have sometimes have one stored acceleration sequence and sometimes have zero stored acceleration sequences when there is no difference in the velocity requests. The claimed method step then specifies the summing of the velocity changes defined by "the stored acceleration sequences". The claim does not require a third velocity request which would, at times, have plural stored acceleration sequences, as to have the plural aspect of "the stored acceleration sequences" lack a clear antecedent basis in the claim.

With respect to paragraph b of the rejection under 35 U.S.C. § 112, second paragraph, line 14 of claim 1 refers to "the stored sequence parts". The term "stored sequence parts" is not introduced into or found in claim 1 in any manner. There is no antecedent basis for this term with in the claim. Except for the general statement that the claims would be clear to a hypothetical person possessing the ordinary skill in the pertinent art, Appellant's brief is silent with respect to the basis for this terminology.

Appellant argues on the bottom of page 7 through the middle of page 8 of the brief, that with respect to depend claims 2-5, Appellant's submit that these claims would also be clear to a hypothetical person possessing the ordinary level of skill in the pertinent art. However, as discussed in paragraph c of the rejection under 35 U.S.C. § 112, second paragraph, Claim 2 has been amended by removing the term "the" from in front of summing stored sequence parts as to indicate that these are not the same sequence parts as previously discussed in the penultimate line of claim 1. The overall sentence structure is awkward and the claim is difficult to understand. It is unclear as to what is being claimed as delayed, the performance of the next velocity change or the reading and/or the summing calculation procedure, note also that action "to be performed as delayed" is at a time interval longer than "the control step". However it is unclear as to whether each control step has been defined as having the same time or definition time, see line 11 of claim 1, and it is unclear as to what time measurement is considered the time of "said

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control step". Note that line 12 of claim 1 uses the term "each control step" and does not have only one control step which can be considered as "said" control step.

Paragraph d of the rejection under 35 U.S.C. § 112, second paragraph, states that claim 3 is also unclear, as by amendment, the term "the" has been deleted from the phrase "the reading and summation interval". This amendment also has the limitation failing to indicate that the previous reading and summation step is being further limited. In claim 3, line 2, it is unclear as to why the term "the" has been deleted from the phrase "the stored sequences". As in claim 2, these amendments also leave the claim 3 grammatically incorrect. Paragraph f of the rejection also questions the removing the term "the" from the phrase "the parts of the sequences" in claim 4, as it fails to indicate that these were the same sequences parts as in the penultimate line of claim 1.

The rejection under 35 U.S.C. § 112, second paragraph, of claim 4 does more than just question a grammatical amendment to the claims. It states the claim discusses "storing parts of the sequences to be performed as delayed in a two-element table, wherein a velocity change is defined in the first element and time, after which the velocity change or changes to be performed as delayed is/are added to the velocity request, is defined in the second element. It questions which "time" is being claimed as delayed, and what appellant is attempting to claim with the limitation "after which the velocity change or changes to be performed as delayed is/are added to the velocity request"? Is it the time until the next velocity change, or the time for the adding or determining of the amount of the next velocity change? Appellant states the scope of the claim is clear, but cannot explain the subject matter of the claim as to overcome the rejection.

The rejection of claim 5 under 35 U.S.C. § 112, second paragraph also questions the entire subject matter which appellant is attempting to claim. The claim begins by discussing "restricting the change of velocity actual value". This term is not understood. At what point of the method is any of the velocity changes capable of being restricted? The phrase "the change of velocity actual value" lacks antecedent basis in the claims. How is the claim restricting an actual value? This is not understood as it is not fully defined. How does this actual value relate to the stored requested values? How can it be restricted with respect to the previous change if it is the **actual** value? Also, the term "previous change" lacks antecedent basis within the claim. The claim attempts to set the change with a "used control step" which is not understood. The step "equals to set maximum acceleration or deceleration at most". Again, removal of the term "the" creates a grammatical error. It is also unclear as to why the term "at most" is included in this phrase. Again, Appellant's brief has made no attempt to explain the meaning of any of these terms in the claim as to what is the intent of the claim, and Appellant's brief has made no attempt to

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relate these new terms of claim 5 with the terms of claim 1, as to establish any antecedent basis correlations.

At the bottom of page 8 and on page 9 of the brief, the appellant argues the rejection under 35 U.S.C. § 103. Appellant states that Hytönen fails to disclose or suggest at least "performing some of the velocity changes defined by summed acceleration sequences at a definition time of each selected sequence on each control step and performing the rest of them as delayed, reading and summing the stored sequence parts to be performed as delayed on a plurality of program rounds" as recited in independent claim 1. Appellant argues that as this method step is "not obvious nor disclosed by Hytönen" that "the claimed method for controlling a crane is different from the utilized prior art". This argument does not fully address the rejection as put forth in the Final Rejection. Appellant never discusses the entire rejection, it just gives an oversimplified explanation of differences between the earlier, commonly assigned, prior art reference and the appealed claims. Appellant's brief fails to argue that the rejection states that algorithms and formulas are considered as mathematical expressions of scientific principles. Scientific principles have been held by the courts in themselves to not constitute patentable invention and are treated as though they were prior art.

The full rejection states that, as the claims are best understood, the method for controlling the crane of Hytönen varies from the claimed method by not having the algorithm step of delaying some of the velocity changes defined by acceleration sequences at a definition time, and reading and storing remaining acceleration sequences. The rejection states that in view of the teachings of the cited court cases, it would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the control algorithm of Hytönen as to include a "delaying" algorithm step, as algorithms are considered as known prior art.

Appellant discussing just the primary reference of Hytönen, fails to fully argue a rejection that includes modifying the primary reference as per the teachings of the court cases.

Appellant fails to argue the criticality of any differences between the control algorithm of Hytönen and the claimed control algorithm. If the claimed control algorithm has any significant differences, why aren't they found in the drawing figures? Drawing figure 3 of this application shows the flow chart illustrating the claimed control method. This drawing figure 3 is identical to the flow chart shown in drawing figure 3 of the Hytönen reference. Drawing figures 1 and 2 of this application are also identical to drawing figures 1 and 2 of Hytönen. As this application has the exact same three drawing figures as the Hytönen reference, and no other drawing figures, the application was filed without the appellant feeling a need to

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even update the previous drawing figures. How critical can an algorithm change be, if there no need to show the change in the flow chart of the drawing figures?

Note also that Appellant's explanation of differences between the earlier, commonly assigned, prior art reference and the appealed claims is vague. The brief merely states that Hytönen fails to disclose or suggest at least "performing some of the velocity changes defined by summed acceleration sequences at a definition time of each selected sequence on each control step and performing the rest of them as delayed, reading and summing the stored sequence parts to be performed as delayed on a plurality of program rounds" as recited in independent claim 1. However, the reference of Hytönen does disclose, or at least suggest, performing some of the velocity changes and delaying others. It does not do this based upon "a definition time of each selected sequence". It appears to use a different time interval. Note that the last four lines of claim 3 of Hytönen have "applying the new control command to the operating element of the crane before completion of a control sequence of a previous velocity request". Applying a new command before the previous control sequence is completed is similar to the recited "performing some of the velocity changes defined by summed acceleration sequences" of the initial command sequences and then summing in the outstanding control sequences. Note that this step is with respect to stopping the crane travel, as to include summing negative acceleration control signals bringing the crane velocity to zero.

(11) In Conclusion

Obviously this application, based on a PCT filed in July of 2004, and the commonly assigned reference of Hytönen, filed 14 years earlier as a PCT in April of 1992, are drawn to almost identical inventions with almost identical control algorithms. As indicated by the appellant's use of the same drawing figure 3 and flow chart in both applications, any differences, if any, are a close call. With only very minor distinctions between the application and the reference, the claims cannot have any problems regarding indefinite claim terminology, as per 35 U.S.C. § 112, second paragraph. While some of the indefiniteness issues in the rejection include just not following the preferred format to establish antecedent basis, i.e., that every phrase beginning with "the" or "said" such as "the stored sequence parts" has been previously clearly introduced into the claim, other indefiniteness issues in the dependent claims include method steps with incomplete phrases or include terms which cannot be correlated with the terminology of claim 1. For example, in claim 2, the limitation of a step to be "delayed at a *time interval* which is many times longer than *said control step*" does not correlate this "*time interval*" with the possibly related "*definition time*" of line 12 in claim 1 and claim 2 somehow assigns a time dimension to "*said control step*". Appellant cannot dismiss all of the above listed claim language problems with a broad statement that the scope of the claims would be clear to a hypothetical person possessing the ordinary level of skill in the pertinent art.

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The claims must particularly point out and distinctly claim the subject matter in this application, before it can be compared and contrasted with the reference.

The claims, as best understood, also stand rejected under 35 U.S.C. § 103 in a prior art rejection that begins with the primary reference of Hytönen and has any differences between the reference and the claims as control algorithm matter. The courts have held that whether the algorithm was in fact known or unknown at the time of the claimed invention; it is one of the "basic tools of the scientific and technological work", and it is treated as though it were a familiar part of the prior art. See Parker v. Flook, 437 U.S. 584, 198 USPQ 193, 198 and Gotschalk v. Benson, 409 U.S. 67, 175 USPQ 674. With this guidance or teaching from the courts, the rejection based on prior art states it would have been obvious to modify the algorithm of Hytönen, by using a different clock time on the steps, as to have some control sequences delayed, because formulas and algorithms are considered as known prior art. The appellant's brief has only argued that Hytönen does not use the same algorithm, the brief does not address the rejection as it does not discuss the modification being made to the primary reference. Clearly appellant is using the same mechanical crane arrangement with the same flow chart and all of the previous control steps found in reference, as to have the court cases' algorithm teachings directly applicable to the prior art rejection in this appeal.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Thomas J. Braham/

Primary Examiner

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